

Maesa permollis Kurz, Jour. Asiat. Soc. Bengal. 40²: 66. 1871

Stout climbing shrub, 2 to 3 m high, the branches rather few somewhat thickened or the ultimate rather slender, densely pubescent with rufous setose hairs almost throughout; leaves petiolate (3–25 mm), the blade thick-membranous, about 25 cm long, 12 cm wide, ranging from 12 to 30 cm long, 4 to 18 cm wide, elliptic or oblong to broadly obovate, rounded or obtuse at base, obtuse to acute or acuminate at apex, distinctly sinuate or serrate-dentate with callose teeth, green and glabrous or nearly so above, brownish and densely rufous pilose or hirsute beneath especially on the nerves, the midrib prominent, the lateral veins terminating in the teeth; inflorescence short, subglomerate or racemose or subpaniculate, shorter than petiole or up to 4 cm long, rather many-flowered, densely hirsute; flowers about 3 mm long, on short pedicels scarcely 1 mm long, white, the bracts minute, about equaling the pedicels; sepals equaling the pedicels, united into a tube almost as long as the limb, ovate, acute, densely hirsute or pilose, the margin narrowly scarious; corolla tubular campanulate, glabrous, the tube about 2 mm long, lightly lined or smooth, the lobes ovate, narrowly rounded, more or less spreading; stamens included, attached within the tube, the filaments short, the anthers about equal to the filaments, broadly elliptical; pistil with short thick style and indistinctly lobed stigma; fruit about 4 mm long, ovoid, acute or apiculate at apex, reddish, densely hirsute.

Distribution.—Southern Asia from Burna to Yunnan and Kweichow.

Specimens examined in various American and British herbaria:—Kweichow: *Y. Tsiang* 4622, 4768. Yunnan: *Forrest* 29394; *Henry* 9649, 9649A, 9649B, 11707, 11707A, 11707B, 11707C, 11707D; *Rock* 2580.

Maesa permollis var. **effusa** Walker, var. nov. Fig. 4

Frutex 3–8 m altus, e forma typica inflorescentibus valde paniculatis ad 9 cm longis differens.

Type in the herbarium of the Royal Botanic Gardens, Kew, England, collected by G. Forrest, No. 12143, in Yunnan; duplicate in the herbarium of the Royal Botanic Garden, Edinburgh. An additional collection is *Forrest* 13637, collected in the "open Jungle in the Taping valley, Upper Burma, . . . alt. 2000 ft, April 1917."

ZOOLOGY.—*A note on the members of the nematode genus Trichostrongylus occurring in rodents and lagomorphs, with descriptions of two new species.*¹ GERARD DIKMANS, U. S. Bureau of Animal Industry. (Communicated by EMMETT W. PRICE.)

The genus *Trichostrongylus* was established by Looss (1905) with *Trichostrongylus retortaeformis* (Zeder, 1800) Looss, 1905, as type species. At the present time the genus contains a large number of species of which the following have been reported from rodents and lagomorphs:

¹ Received March 2, 1937.

1. *Trichostrongylus fiberius* Barker, 1915, from the American muskrat, *Ondatra zibethica* (= *Fiber zibethicus*), (?) Nebraska.
2. *Trichostrongylus calcaratus* Ransom, 1911, from cottontail rabbit, *Sylvilagus floridanus mallurus*; Bowie, Maryland.
3. *Trichostrongylus retortaeformis* (Zeder, 1800) Looss, 1905, from the domestic rabbit, *Oryctolagus cuniculi*, and European hare, *Lepus europeaus*, Europe.
4. *Trichostrongylus pigmentatus* (von Linstow, 1904) Hall, 1916, from *Lepus nigricollis*, Ceylon.
5. *Trichostrongylus affinis* Graybill, 1924, from wild rabbits, Princeton, New Jersey.
6. *Trichostrongylus delicatus* Hall, 1916, from the squirrel, *Sciurus aberti mimus*, Colorado.
7. *Trichostrongylus colubriformis* (Giles, 1892) Ransom, 1911, from hares and rabbits in U.S.S.R. and from *Sylvilagus nuttallii pinetis* and *Lepus* sp. in the United States.

As noted by Hall (1916), Barker's description of *Trichostrongylus fiberius* is very unsatisfactory. Neither the nature of the bursal rays nor that of the spicules can be determined from his figures and descriptions. During the course of the present investigation, trichostrongyles collected from muskrats originating in New Jersey and Iowa have been identified as *Trichostrongylus calcaratus* Ransom, 1911.

Trichostrongylus retortaeformis (Zeder, 1800) Looss, 1905, has been reported as a parasite of rabbits and hares from Europe, but to date there is no record of its occurrence in these animals in the United States. The one specimen labeled *Trichostrongylus retortaeformis* found in the Helminthological Collection of the U. S. National Museum proved on examination to be *Trichostrongylus calcaratus*.

An examination of rabbit parasites which had been entered in the Helminthological Collection of the Bureau of Animal Industry showed that a bottle labeled *Nematodirus* sp. from *Sylvilagus nuttallii pinetis* collected at Howbert, Colorado, contained two kinds of nematodes, one of which on examination proved to be *Trichostrongylus colubriformis*; this nematode was found to have been collected also from *Lepus* sp. in Nebraska. The determination of these latter specimens was made by Dr. E. W. Price of the Zoological Division. They are listed in the collection under Nos. 28165 and 28181. We have, therefore, three records of the occurrence of *T. colubriformis* as a parasite of the Leporidae in the United States. These records are from Colorado and Nebraska.

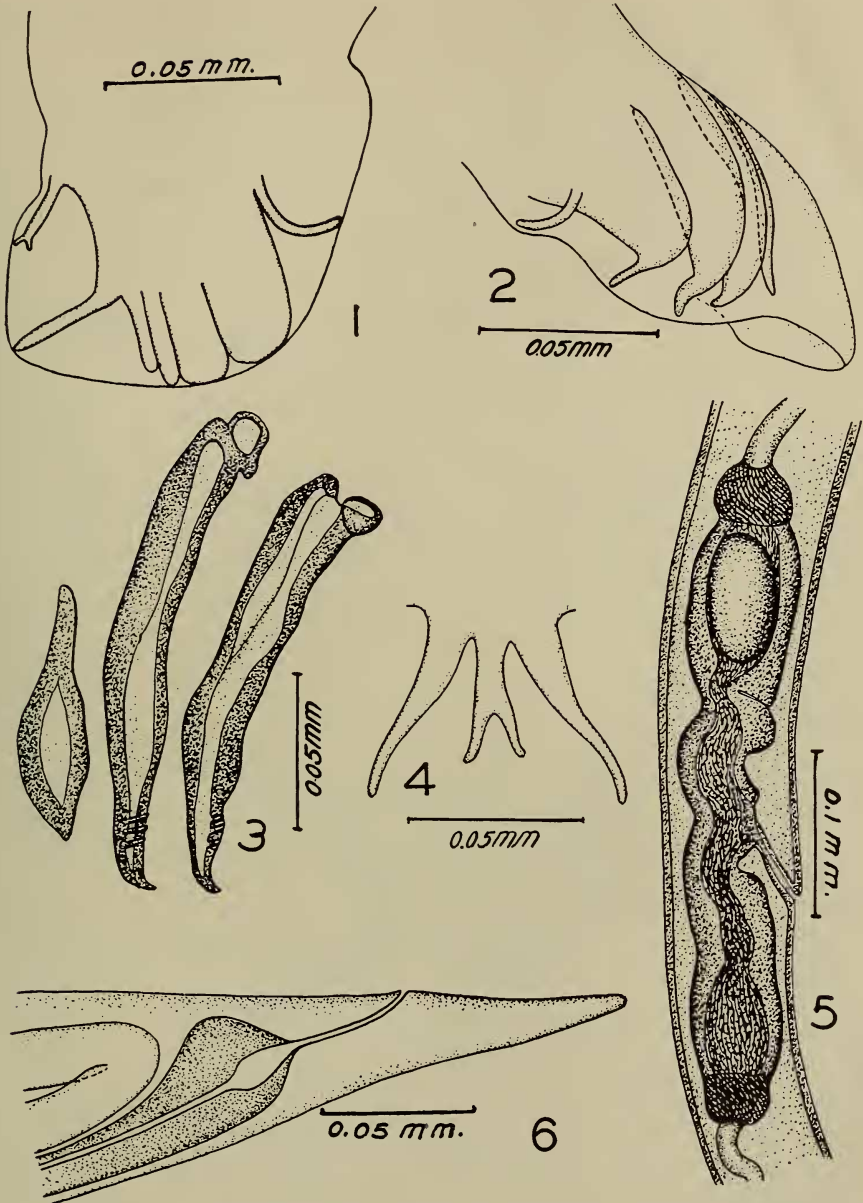


Fig. 1.—*Trichostrongylus ransomi*, n. sp. 1, bursa, right lateral view; 2, bursa, left lateral view; 3, spicules and gubernaculum; 4, dorsal rays of bursa; 5, muscular portion of ovejectors; 6, terminal portion of female.

Trichostrongylus calcaratus was reported by Ransom from *Sylvilagus mallurus* from Bowie, Maryland. During the present investigation these nematodes have been found also in the muskrat, *Ondatra*

zibethica, and the ground hog, *Marmota monax monax*. This nematode is also a common parasite of wild rabbits in Louisiana.

Trichostrongylus delicatus Hall, 1916, has been reexamined by H. F. Nagaty of the Liverpool School of Tropical Medicine and in a letter dated February 28, 1931, addressed to Dr. M. C. Hall, he states that in his opinion *T. delicatus* is identical with *T. colubriformis* (Giles, 1892) Ransom, 1911. (= *T. instabilis* (Railliet, 1893) Looss, 1905, and *subtilis* Looss, 1905.)

In addition to the species listed above, two new species, one from a rabbit and the other from a prairie dog, have been found and are described below.

***Trichostrongylus ransomi* n. sp.**

Fig. 1

Specific diagnosis.—*Trichostrongylus*:

Male 2.25 to 3 mm long by 100μ wide just anterior to bursa; head about 8μ wide. Esophagus 500 to 600μ long. Spicules equal and similar 130 to 140μ long; distal part of each recurved rather sharply and ending in a sharp point; there are three short projections on the inner side of the spicule a short distance in front of the termination of the spicule, which give it the appearance of being serrated. The bursa is tightly rolled in such a manner that it is almost impossible to determine the disposition and course of the rays. As in *T. calcaratus* and *T. affinis*, the ventro-lateral and the externo-lateral rays are the heaviest; externo-dorsals with slender tips but widening considerably at their juncture with the postero-lateral and dorsal rays; dorsal ray lying midway between the two externo-dorsals bifurcating once and terminating in two straight processes.

Female from 3 to 3.5 mm long. Combined length of muscular portions of ovejectors 375 to 440μ . Distance from vulva to anus about 450μ ; that from anus to tip of tail 50 to 60μ . Eggs 60 to 70μ long by 30 to 36μ wide.

Host.—Rabbit (probably *Sylvilagus floridanus alacer*).

Location.—Small intestine.

Locality.—Jeanerette, Louisiana, U. S. A.

Type specimens.—U. S. National Museum Helminthological Collection no. 30462.

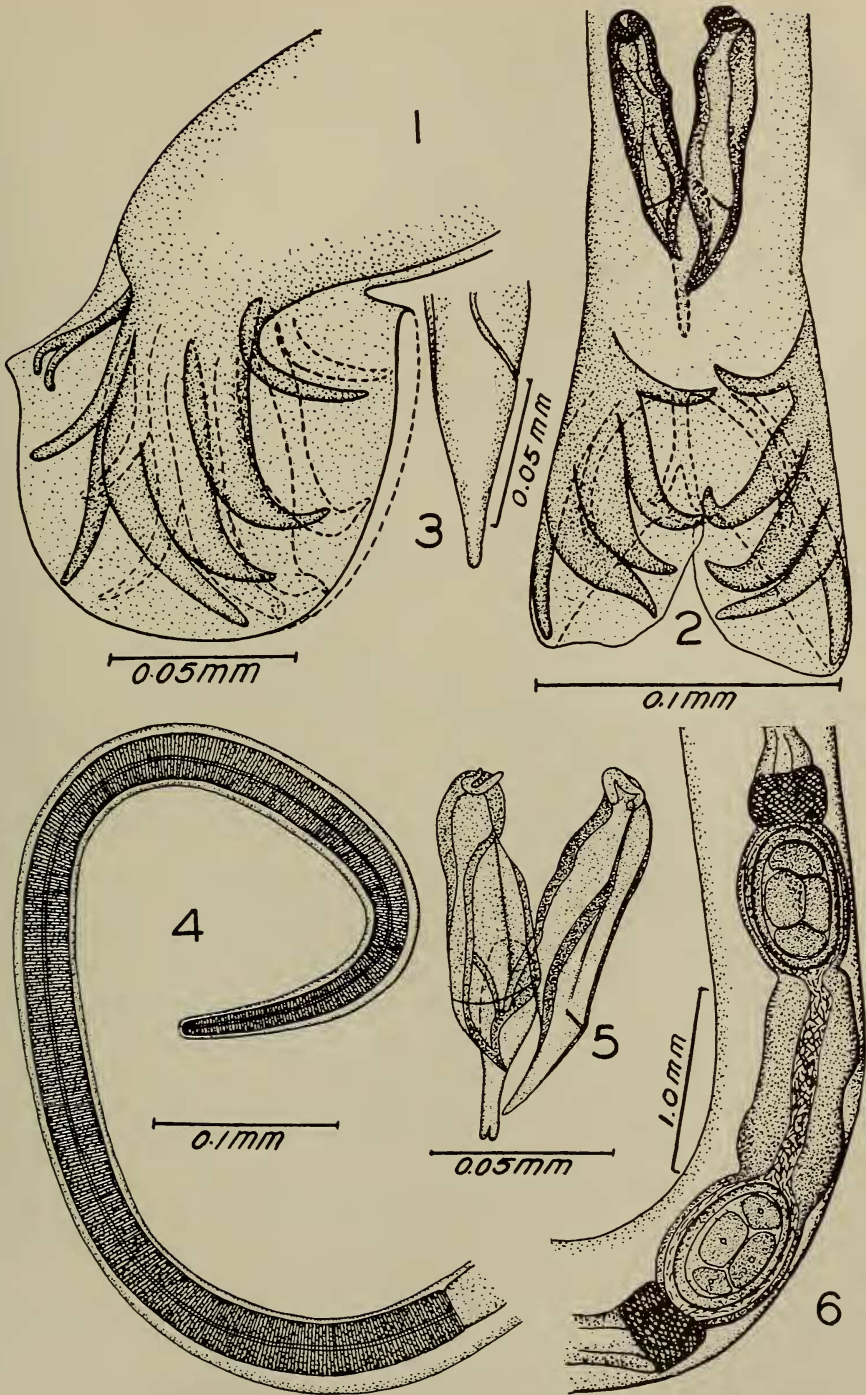
***Trichostrongylus texianus* n. sp.**

Fig. 2

Specific diagnosis.—*Trichostrongylus*:

Male 2.8 to 3 mm long and 65 to 70μ wide in region of proximal ends of spicules. Esophagus 800 to 825μ long and about 30μ wide near its termination. Spicules unequal in length; right spicule about 85μ long and left spicule about 100μ long. Right spicule 25μ wide at a distance of about 65μ from proximal end, narrowing abruptly from that point and ending in a sharp point; left spicule also ending in a sharp point; when viewed from the side both spicules present frontal projections, the one on right spicule located about 20 to 22μ from distal end, the one on left spicule about 30μ from distal end, both spicules presenting bluntly pointed branches originating near

Fig. 2.—*Trichostrongylus texianus*, n. sp. 1, bursa, lateral view; 2, terminal portion of male, ventral view; 3, tail of female; 4, anterior portion of body; 5, spicules and gubernaculum; 6, muscular portion of ovejectors.



(For explanation of Fig. 2, see bottom of opposite page.)

dorsal border. Gubernaculum paddle-shaped, 55μ long and 15μ to 17μ wide, with a slight indentation in the end of the handle of the paddle; handle of paddle about 20μ long and indentation about 5μ long. Bursa symmetrical; ventro-ventral ray small and widely separated from ventro-lateral ray as in other members of genus; ventro-lateral, externo-lateral and medio-lateral rays running parallel toward edge of bursa; postero-lateral diverging from medio-lateral in the dorsal direction; externo-dorsal rays originating at base of dorsal ray; dorsal ray bifurcating about 12 to 15μ from distal end, the unbranched tips of bifurcation bending ventrally.

Female 4.8 to 5.2 mm long and 85 to 90μ wide in region of vulva; head 7 to 10μ wide. Esophagus 850μ long by 25 to 30μ wide at its distal portion. Combined length of muscular portions of ovejectors, including sphincters, 350μ . Vulva 850μ from end of tail; distance from anus to tip of tail 60 to 65μ . Eggs 70 to 80μ by 45 to 50μ .

Host.—Prairie dog, *Cynomys ludovicianus arizonensis*.

Location.—Small intestine.

Localities.—Nolan and Runnels Counties, Texas, U.S.A.

Type specimens.—U. S. National Museum Helminthological Collection no. 30463.

The two species described above may be differentiated from other species occurring in rodents and lagomorphs by the following key:

KEY TO THE SPECIES OF TRICHOSTRONGYLUS IN RODENTS AND LAGOMORPHS²

1. Spicules more than 550μ long; viscera pigmented black. . . *T. pigmentatus*
 Spicules less than 500μ long; viscera not pigmented black. 2
2. Spicules more than 175μ long, asymmetrical; distal end of right spicule smooth, of left spicule serrated. *T. calcaratus*
 Spicules less than 175μ long. 3
3. Spicules 130 to 155μ long, distal ends provided with two blunt recurved hooks; distance from anus to tip of female tail 140 to 165μ *T. affinis*
 Distal ends of spicules not provided with blunt, recurved hooks; distance from anus to tip of female tail less than 140μ 4
4. Spicules 130 to 140μ long, distal ends recurved, ending in sharp points and with three projections on inner side of each spicule. . . . *T. ransomi*
 Distal end of spicules not provided with projections as above. 5
5. Spicules equal, 135 to 145μ long, terminal hook of spicules long and sharply defined but not high; distance from anus to tip of female tail $55-70\mu$ *T. colubriiformis*
 Spicules unequal. 6
6. Spicules similar in conformation to those of *T. colubriiformis*, shorter spicule 145μ long, longer spicule $157-172\mu$ long; median side of each spicule provided with two long, thin appendages; female tail long and narrow. *T. retortaeformis*
 Right spicule about 85μ and left about 100μ long; right spicule narrowing abruptly about 65μ from proximal end; both spicules terminate in sharp points. *T. texianus*

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² *T. fiberius* has not been included in this key because it is impossible to determine its identity from the original description and figures.

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ENTOMOLOGY.—*Records of Argynnis diana and of some other butterflies from Virginia.*¹ AUSTIN H. CLARK, U. S. National Museum, and CARROLL M. WILLIAMS, University of Richmond.

The great diversity of geographic conditions in Virginia is reflected in widely varying faunal conditions in different portions of the State. The low-lying eastern portion is a northeasterly extension of the Lower Austral life zone. The mountains in the west are characterized by a southwesterly extension of the Transition zone, with their highest summits, in the southwest, capped by Canadian "islands." Between the Lower Austral and Transition zones is a narrower strip of Upper Austral not very clearly differentiated—so far as the butterflies are concerned—from the Lower Austral.

The Lower Austral zone in Virginia presents some curious anomalies. Perhaps the most interesting of these anomalies is the occurrence in localized areas of species of butterflies characteristic of the Transition zone. Such species are *Argynnis diana*, *Satyroides eurydice*, and the typical form of *Atrytone dion*, which seem quite out of place on the hot coastal plain. *Argynnis cybele*, common in the Upper Austral and Transition zones, also occurs here.

In these same areas *Enodia creola* is widespread and locally common, and *Amblyscirtes carolina* is almost everywhere present, though apparently never very numerous. *Enodia portlandia* and *Amblyscirtes textor* also are common here, but both of these range eastward to the sea.

Atrytone dion dion occurs in the cool boggy hollows between the sand dunes west of Cape Henry; the southern form, *A. d. alabamiae*, occurs further to the northward, in the Dahl swamp in Accomac County. The other species are found, in more or less widely separated localities, along the western border of the Dismal Swamp and in and

¹ Received March 2, 1937.